



VOL. VI. NO. 51.

CLEVELAND, O., DECEMBER 18, 1884.

\$2.00 PER ANNUM
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AROUND THE LAKES.

CLEVELAND.

Captain Hastings, of the N. K. Fairbanks, who has been quite ill at Duluth, has finally arrived at his home at Milan.

There were 1,833,117 tons of iron ore received at Lake Erie ports during the late navigation season, against 1,692,689 tons last season.

Holiday excursion rates will be made to all points on the C., C., C. & I. railway from December 23d to January 2d, inclusive, the rate for children being reduced fifty per cent.

Charles Goodwin, son of U. C. Goodwin, Captain of the life saving crew at this port, has returned from Erie, where he has been a member of the life saving crew during the two last seasons.

The iron ore men of this port are taking measures to memorialize the Senate in opposition to the treaty with Spain, on the ground that the Cuban ores, duty free, could be laid down here cheaper than American ores.

Captain Joseph Todd, has gone to Portsmouth at the end of the canal, to take charge of S. V. Harkness' yacht Twilight. She is on the way to New Orleans, via the Ohio river. Mr. Harkness and family will join the boat at Cincinnati. The Twilight will probably be left at New Orleans, if a satisfactory sale can be made.

The Cleveland life savers gave their fifth annual ball last evening, at Lang's hall. An enjoyable time was had, under the management of Captain C. C. Goodwin, president; G. L. Lyon, vice president; L. Distell, Secretary and Treasurer. The floor directors were J. Rice and A. G. Regan, and the floor managers, J. L. Everly, W. H. Goodwin, W. I. Caddick, F. T. Hatch, J. Goodroe and D. Hayden.

The elegant steam-yacht Laura M., owned by H. L. Shaw, et al, of East Saginaw, is offered for sale. The following is a good description of her: Length, 28 feet; beam, 5 feet 6 inches; depth, 3½ feet; draws 26 inches aft and 8 inches forward; is built of oak, cedar and pine; is furnished with a 3-horse power engine of improved pattern, which drives a 20-inch Buffalo wheel. The boiler is of the best quality of Otis steel, 65,000 tensile strength, size 30-inch shell by 44 inches in height, with sixty 2-inch flues, which are submerged. Government inspection, 130 pounds of steam. Is fitted with common and government pop valves, pony pump and injector, tools, lamps, life preservers, colors, embossed cushions to seats, carpets, etc., all combining to make one of the safest and most complete steam yachts of its size ever built. Speed, ten miles an hour on fifteen pounds of coal. Capacity, fifteen to twenty persons. Can be chartered for fishing, hunting and pleasure parties day or night.

ERIE.

The United States revenue cutter Perry was put out of commission on the 11th, her Lieutenant ordered to Washington, and her crew, excepting four men, discharged. Captain Hodgson has taken up his residence at Erie. The lights will burn until the lake closes.

OWEN SOUND.

The schooner Scotia arrived from Michipicoten river, Lake Superior, to lay up for the winter. Her Captain reports the steamer Ocean at Sault St. Marie. She is going to make another trip to Michipicoten this fall.

CHICAGO.

Special to the Marine Record.

The steambarge Charles Rietz, Captain D. Curran is laid up at this port. She made fifty trips to Manistee and back between April 25th and December 1st. She towed the barges Florence, Agnes L. Potter and John Mark forty-eight trips out of the fifty.

Graham & Morton's steamer Lora, Captain Stines, is laid up at Benton Harbor. J. A. Baldwin, her engineer, has been appointed chief engineer of the company's steamers. He will superintend the repairs to the machinery of the City of St. Joseph damaged by fire recently at Benton Harbor.

The Ford River Lumber Company's schooner's Ford River and Resumption will receive new decks this winter.

The steambarge Albert Soper, Captain J. Hogan, has made 93 round trips between Muskegon and this port during the past season, and conveyed 33,865,000 feet of lumber, which is the largest quantity ever carried by a steambarge in one season.

The steambarge Tempest, Captain A. Gallagher, made eighty-nine trips between Grand Haven, Muskegon, and this port during the season. She is laid up at Grand Haven and will get new decks this season.

The schooner Arundel, Captain Hanson, will go to Manistee to lay up.

The steambarge Maggie Marshall, Captain F. J. Norman, made forty round trips between Manistee and this port this season. She will lay up at Manistee.

The case of Guttman against the Hamburg American Packet Company was remanded to the State Court because it appeared that both parties were aliens, and that being the case, the Federal court had no jurisdiction.

The Morford is in Miller Brothers' drydock having her stern bearing fixed and the tug Miller is getting a new stern, stern bearing and wheel.

The schooner Melvina, laden with pig iron from Elk Rapids, arrived on Saturday just before midnight, in tow of the tug Admiral, Captain A. Green, who took her in tow off Waukegon. Some fears were entertained as to the schooner's safety, as she had been out so long and must have encountered very bad weather.

The schooner C. C. Barnes has been loaded with wheat at 4½ cents for storage and freight. The schooners Annie M. Peterson and Thomas L. Parker are loading with flaxseed at 4½ cents, and the steambarge D. M. Wilson and her consort, the Manitowoc, with wheat at 4½ cents.

Captain N. Peterson is doing a good trade in Christmas trees on board his scow Coaster, at the foot of Clark street bridge.

The Goodrich steamer Depere, Captain H. E. Stines, arrived from east side lake ports Saturday. She brought along a large quantity of merchandise, a saloon deckload of Christmas trees and 500 barrels of salt.

Captain W. Robinson and the officers of the steamship H. J. Jewett, will go to their homes Friday, after completing the laying up of that fine steamship at the Union Company's dock, foot of Randolph street bridge. The Jewett made seventeen trips from Buffalo to Chicago, and sixteen down trips last season.

The case of Henry Stark and others against Wm. Mueller was a libel for wages by four seamen who shipped at Milwaukee October 26, 1883, and agreed to go on a round trip to Gill's Pier, Mich., and thence

to Chicago, for \$20 each for the trip. The vessel was lost four days after she left port, and the libelants claimed five days' pay at \$3 a day. The court held, overruling the report of Commissioner Proudfoot, that the contract was an entirety, and the court could not divide it when its performance became impossible when prevented by peril of the sea. This follows the case of Thorson et al. vs. Peterson et al., 10 Bissell, decided by Judge Blodgett and affirmed by Judge Drummond, on appeal. The present case is the first decision on the books where the question comes up directly, it only being incidentally treated in the case in 10 Bissell. The libel was, therefore, dismissed at the costs of the libelants. Wm. L. Mitchell for libelants, and Schuyler & Kremer for the defense.

The case of John J. Corcoran, administrator of O. W. Goit, late owner of the schooner Metropolis, against the propeller Monohansett was one of collision which occurred May 26, 1883, near Death's Door. The schooner was loaded with cedar and bound for Grand Haven, and having got through the Door, set her course south by east, the wind being light from the southwest. The weather was very foggy. The schooner's horn was sounded regularly when the steamer was heard over the port bow a long distance away, approaching, and she finally collided with the schooner, striking on the port bow, cutting into her to the windlass. The steamer admits that the horn of the schooner was heard three different times before the collision, and that when last heard the steamer's way was stopped, she running at the time from three to four miles an hour. Judge Blodgett held the steamer to blame for the collision, because she should have stopped entirely when the signal was first heard; but that the schooner was at fault for not showing the propeller a torch, as required by law. The damages, which are about \$4,000, are, therefore, to be divided between the parties, showing that the torch, if shown properly, would have been worth \$2,000 to the Goit estate. Schuyler & Kramer for the schooner, and William H. Condon for the steamer.

The case of Reuben Vanderhoof, owner of the steamer Grace Parker, against the schooner Red, White and Blue was to recover for damages sustained by the steamer by being run into while lying at a dock at Ludington, Mich., by the schooner. There was a heavy gale blowing at the time, and the schooner's towline from her tug parted, and her sails being mostly set she became unmanageable, and hence the accident. The defense was that the dock was an exposed place and an improper one for the steamer to lie at. Judge Blodgett, however, found for the steamer, and gave her owner a decree for \$410. Messrs. Schuyler & Kremer appeared for the libelant, and William H. Condon for the defense.

[We will, at the proper time, give the opinions in full on the above cases.—Ed.]

J. S. Dunham's wrecking tug, T. T. Morford, arrived on Sunday last, from Good Harbor. Captain Franklin, inspector for the Boston Marine Insurance Company, states that immediately after rescuing the schooner Mineral State, at Ford river, and taking her to Manitowoc, the Morford went to the assistance of the schooner Three Bells, ashore at Good Harbor, and arrived there on the 5th instant, and found that the Captain was having the schooner's deck load of

cordwood lightered. After a consultation with the captain the remainder of the deck load was thrown overboard, in order to get the pumps on board as soon as possible; two pumps were placed on the schooner's deck and pumping commenced. But as no good result could be obtained orders were given to get the pumps on board the tug as soon as possible, as it was blowing hard and the weather was looking bad. The pumps were got off, after considerable difficulty, owing to the heavy sea, but they were compelled to leave the boilers behind and wait until the gale subsided. The gale, however, increased, and the schooner went to pieces, and the boilers left on board went to the bottom. After a delay of several days the boilers were got up and put on board the tug on the 13th, when they left Good Harbor for this port. The Three Bells was insured for \$2,300. Captain Franklin speaks in the highest praise of the Morford and her captain, Charley Roach, and the officers and crew, not even forgetting to eulogize the cook.

The propeller Argonaut, Captain R. W. Hayes, is in one of the Chicago Company's drydocks, getting considerable new plank in her bottom, a piece of garboard stake and a piece of new keel. She struck a rock on the 9th of October, when about one-half mile off the northeast end of Hope Island, Georgian Bay, which tore up her bottom badly on the port side. She then went to Midland, and when in the center of the bay, about one-half mile from the elevator, she went aground on a shoal of about twice her length. She was drawing fifteen feet of water, and after backing and going ahead for half an hour, Harbor Master Polkinhorn shouted to the captain to know if the vessel was really on the ground, as he was not aware of any shoal being there. He did not, however, omit to charge \$7 for harbor dues, although he tried to straighten things up by writing a long letter to the authorities, urging on them the necessity of having a buoy placed thereon. No one at Midland had any knowledge of the shoal until the Argonaut brought up on it.

At the Chicago Drydock Company's yard the steambarge Maine is in drydock getting a new stern post, new deadwood, stern pipe, a piece of new keel and bottom calking. The tug Satisfaction had a new stern post and some repairs to her machinery, the schooner Golden Fleece got new hatch combings, the schooner Annie M. Peterson some minor repairs, the schooner William Jones had her cabin deck calked.

The schooner R. B. Hayes, Captain W. F. Morris, coal laden, which arrived from Cleveland on the 7th, is not yet unloaded. The delay has been occasioned by the breaking down of the machinery at Corcoran's coal dock, near Van Buren street, where she is unloading. The Hayes will be docked for repairs of damages sustained through being towed on the middle ground off Point Au Pelee Island by the tug Quayle, on her last trip up.

The schooner Morning Star left Monday morning for Kenosha, where she will go into winter quarters. T. W.

MANITOWOC.

The Government tug Dione is at the drydock and will be overhauled and repaired this winter. James Cumberland will do the boiler work.

[Continued on 4th page.]

MARITIME LAW.

COLLISION—LOSS OF CARGO—CLAIM OF INSURANCE CO. TO BE SUBROGATED TO RIGHTS OF OWNER—NEGLIGENCE.—THE GEORGE MURRAY.

U. S. Dis. Court N. D. Ill.

Blodgett, J.

On the morning of October 14, 1880, a collision occurred in the waters of Lake Michigan, a short distance off Point Waughoshance, between the schooner George Murray and the steam propeller Canistio, in which the Canistio, was so badly damaged that she was beached within a short time after the collision.

Wiley M. Egan, as owner of the schooner, filed a petition for limitation of liability, and the usual motion against all persons having any claims against the schooner was issued.

The Canistio was bound on a voyage from Chicago to Buffalo, with a cargo consisting in part of 15,000 bushels of corn, on which the Phoenix Insurance Company had issued a policy of insurance. The cargo of the Canistio being a total loss by reason of the collision, the insurance company paid the loss to the amount of \$7,200 under the policy, and presented its claim for the amount in its own behalf, asking to be subrogated to all the rights of the owner of the cargo, and claimed to be paid its proportion out of the appraised value of the Murray, on the ground that the collision in question occurred by reason of the negligent navigation of the Murray and neglect of duty by her officers and crew. The allowance of this claim was resisted by Egan on the ground that the collision was brought about wholly by the negligence of those in charge of the Canistio. On the issue thus made as to negligence, proofs were taken and the commissioner has reported that the collision was occasioned by the fault of those in charge of the Canistio, and not by reason of any fault on the part of the Murray. To this finding by the commissioner, the insurance company has filed exceptions which have been fully discussed by counsel. The faults charged by the insurance company against the Murray as a ground of recovery are:

1st. That the schooner after she was sighted by the steamer and when they were approaching each other, changed her course and thereby caused the collision.

2d. That the schooner had no lookout.

3d. That the officer of the deck neglected his proper duty at a time when his active vigilance and attention to the navigation of the vessel was demanded, to attend to other work belonging to his subordinates.

The testimony is voluminous and as is usual in collision cases contradictory in many important particulars.

It is, however, conceded on both sides, that the collision occurred between half past three and four o'clock in the morning; that the night was clear and the wind about southeast, a six to eight knot breeze; that the steamer when she first sighted the schooner was to the south and west of Waughoshance light, running about northeast in the usual track of steamers approaching the entrance to the Straits of Mackinaw, and that the schooner was to the north of the light having just passed through the straits on her way to Chicago. It must also, I think, be assumed as true from the proof, that at the time the schooner was first seen, from the steamer, she had changed her course from about west, which she had been running while in the straits, to a southwesterly course, for the reason that the master of the steamer says he first saw the green light of the schooner which would indicate that the schooner had passed sufficiently west to round Point Waughoshance and shaped her course for the Manitowish. This was about twenty minutes before the collision, and the vessels were then four or five miles apart, the steamer running about nine miles an hour and the schooner about six miles an hour, making the united speed about fifteen miles an hour.

The mate of the Canistio who was the officer of her deck at the time of the collision and is the principal witness relied upon by the insurance company to show that the course of the schooner was so changed as to cause the collision, says that he first saw the schooner's green light and that it bore about half a point on his starboard bow; that she kept her green light in view eight or ten

minutes and then showed a red light; that he then put the wheel of the steamer to port, so as to keep her to windward of the schooner and show her his red light. Then the course of the schooner was changed and she showed him her green light whereupon he put his wheel to starboard so as to show his green light to the schooner; soon after the schooner showed her red light again, whereupon the wheel of the steamer was put hard to port and then the collision occurred, the steamer striking the schooner just forward of her mizzen rigging, staving in the bows of the steamer but doing comparatively slight damage to the schooner.

Four witnesses, Greenwood, Rock, Jackson and Mrs. Givins, who were on the schooner, are also called by the insurance company. At the time the steamer was sighted on the schooner the mate of the Murray was officer of her deck and Greenwood and Rock were in his watch. When the course of the schooner was changed from that sailed while passing through the straits to the course for the Manitowish, it became necessary to haul in her sails so that she would run closer to the wind. Rock had been acting as lookout but was called by the mate to help him, the mate, and Greenwood, the other seamen of the watch, haul aft the main and mizzen sheets. Rock states that he had seen the lights of the steamer and reported her to the mate before he went aft to help haul in the sheets.

Greenwood says that while the mate, Rock and himself were at work at the sheets the captain came on deck; that he, the captain, looked over the lee side which was the starboard side of the schooner and said to the mate "what light is that?" that they all looked and saw the green light and mast-head light of the steamer, and that the steamer was then from one to two points on the schooner's starboard bow; that soon after the captain ordered Rock to show a torch and while he was showing the torch the captain shouted to the man at the wheel "hard up" and the wheelman answered "hard up, sir"; that they immediately saw the steamer's lights first ahead and then her red light on the port bow of the schooner, and then the collision occurred.

This witness' statements as to the time are quite loose and uncertain, but his statement of the sequence of events is fairly clear. He was engaged in helping haul in the sheets; heard the captain ask what light that was and the mate's reply, looked himself and saw the steamer's green light; then and while witness was still at work at the sheets, the captain ordered a torch to be shown, and while the torch was being shown he ordered the wheel hard up; then the steamer crossed the bows of the schooner and showed her red light on the schooner's port side and then came the collision.

Rock states that while he was helping to haul aft the sheets the captain came on deck, looked out and asked, "what light is that to leeward?" The mate replied, "some steamer bound down." The witness looked and saw the steamer's green light; then thought he saw her red light, but does not state how much time passed between the time he saw the green and the time he thought he saw the red light. The captain then ordered a torch shown and ordered the wheel hard up. He showed the torch for a sufficient length of time, then put it out, and gave the alarm to the watch below, and just as some of them got on deck the collision occurred; that after the wheel was put hard up the schooner swung off to leeward, and was swinging to leeward when the collision occurred.

The witness, Jackson, was in the watch below and asleep when the alarm was given; he states that when he came on deck the schooner was paying off very fast with the steamer on the schooner's port bow. He says no sooner had the schooner paid off than the steamer walked right into her weather quarter.

Mrs. Givins, the cook of the schooner, was in her room till the alarm was given. She testifies that she saw the torch shown and that five or six minutes after it was put out she heard the order to put the wheel hard up given. It is quite evident that neither Jackson nor Mrs. Givins saw anything until just the moment before the collision, and their testimony throws little light upon the circumstances which brought about the collision.

This is all the testimony as to the alleged

changes of course by the schooner, and it will be seen that the witnesses on the schooner only testify to one change of course, and that was at or about the time the torch was shown some say the order to put the wheel hard up was given before and some say it was given after the torch was shown, and the concurrent testimony of these witnesses is that at the time the torch was shown the danger of collision had become imminent. Indeed it can hardly be supposed that the captain of the schooner would have deemed it necessary to show a torch on such a night when the atmosphere was so clear that there was no difficulty in seeing objects like a steamer or schooner at quite a distance, without reference to their lights, if the maneuvers of the steamer had not been such as to create alarm or cause him to infer that, for some reason, those in charge of the steamer had not seen the schooner and were not aware of the danger.

[Concluded next week.]

WORK OF THE FLOATING BETHEL.

The sixth annual meeting of the Sailors' Floating Bethel Society was held aboard the Bethel, at the foot of St. Clair street, on the 5th. The following officers were elected: Captain Thomas Wilson, president; Captain R. Greenhalgh, vice president; W. H. Doan, treasurer; Samuel Barker, secretary; Rev. J. D. Jones, chaplain and superintendent; directors: Captain A. Bradley, Captain Thomas Wilson, Captain William Lacey, Captain R. Greenhalgh, Stiles H. Curtiss, Captain George Stone, Captain C. Rewell, George H. Ely, W. H. Doan, Samuel Barker, C. L. Jones, C. O. Scott, Rev. J. D. Jones. The report of the treasurer showed that the society was in debt for the first time since its organization. The work during the past year has been unusually heavy, and the increased outlay was for that reason made necessary. The secretary, in submitting the sixth annual report, said that during the past year the number of unfortunate ones aided was unusually large. The members of the society have always cheerfully responded to calls from the bedside of the sick and dying. The society has also conducted funerals for those who do not belong to any church, and paid rent where sickness required it. In connection with this work they have furnished thirty-two tons of coal. Many instances of help furnished the poor or crippled are given. A sailor so badly burned that both legs had to be amputated was given an invalid's chair and \$20 worth of clothing. The chaplain made a visit to Buffalo, and secured \$400 for him from the owners of the vessel. During the recent meetings at the Tabernacle a young man said he had been brought to a knowledge of his Savior through the Floating Bethel. The Bethel Missionary Committee, consisting of Rev. J. D. Jones, C. H. Felowes, Mr. J. Watt, Mrs. H. McClean, Mr. L. Leisk, Mrs. C. H. Felowes, Mr. C. P. Conant, Mrs. George Slack, Mr. George Slack, Mrs. J. D. Jones, Mr. F. Bennett, Mrs. H. Redhead, have made 483 visits during the year. Over two hundred letters, many of them containing grateful acknowledgments of assistance, have been received during the year. The collections at the meetings held aboard the Bethel amount to over \$175. This amount has been given to the sick. A letter from Rev. D. C. Blood, the first Bethel worker in the city, and who was a chaplain here fifty years ago was read, bidding the society "God speed." The religious work is progressing well. The prayer meetings and Sunday-schools are well attended. More than a score of instances where help has been furnished are given, and these cover a very small per cent. of the cases where the society has sent either fuel, provisions, or clothing. The chaplain, Rev. J. D. Jones, enters upon the eighteenth year of his service in the Bethel work.

In the January HARPER's, by way of contrast with our wintry weather, Mr. Barnett Phillips will describe the balmy delights of "The Cruise of the Wallowy" along the Florida coast. The Wallowy was a schooner yacht chartered at Cedar Keys by a party of six Northern tourists, and her cruise of three weeks off the west coast of Florida was made at a cost of about \$400. Those who wish to know "how to do it" for themselves will be especially interested in the paper, which will have charming illustrations from the pencils of R. Swain Gifford and others.

GENERAL NEWS.

The drydock at St. John, N. F., which cost \$600,000, was opened Wednesday.

The Canadian revenue for November fell off \$165,000, and the expenditures for the month exceeded the revenue collected by \$811,000.

A Cuban lighthouse was lately surrounded by such a cloud of red insects that mariners reported the light at a distance as being red.

The amount of foreign grain received at Kingston during the season of 1884 was 4,521,978 bushels. The quantity in 1883 was 5,802,903 bushels.

The official trials of the boilers and machinery of the United States iron clad monitor Puritan were completed at Chester, Pa. The test was highly satisfactory.

The citizens of Ottawa, Ont., have signed a memorial to the President-elect of the United States, asking that Colonel Robbins, the present United States consul there, be retained in office under the new regime.

The schedules of assignment of the Oshkosh, Wis., lumber firm of Talman, Conro & Co. were filed on the 10th inst. They show liabilities of \$58,231: nominal assets, \$106,597. The cause was slow collections and depression in the lumber trade.

Fifteen employes in Bruneau's wood camp, near Houghton, were poisoned a few days since by arsenic which had been kept to kill rats, but which got into fish intended for the mess. Two of the men are dangerously sick, but the others are recovering.

A vessel and apparatus for cutting channels in waterways has been patented by John Gates, of Oregon. The vessel has propelling apparatus and a movable rudder, with tanks or compartments for slaking the stern to any desired depth, a hoisting apparatus, and cables with anchors, to hold the stem in position to cut a channel by the back wash from the screw.

The lumber product at Oscoda and Au Sable is smaller by about 35,000,000 feet than last season, this season being as follows: Au Sable Lumber Company, 27,253,210 feet; Perry, Woods & Co., 45,920,350 feet; J. E. Potts & Co., 26,109,270 feet; Gratiwick, Smith & Fryer, 26,881,366 feet; Oscoda Salt & Lumber Company, 18,009,929 feet; T. F. Thompson & Co., 14,062,759 feet; Moore, Tanner & Co., 11,231,729 feet; in rafts, 6,569,942 feet; total, 176,038,552 feet. Potts & Co. will put in over 30,000,000 feet of logs this winter. The Oscoda Boom Company have handled this season over 174,000,000 feet of logs.

The Door County Advocate, Sturgeon Bay, Wis., says: In her passage through here last Thursday evening the powerful wrecking tug T. T. Morford was running under full headway, and the way she walked through the ice was truly astonishing, great cakes a dozen feet square were bodily plucked up by the bow and hurled far beyond the channel when they were broken into minute fragments. The Morford was bound for the schooner Mineral State ashore near Ford River and the manner in which she raised the ice embargo in this harbor would lead one to suppose that she was well adapted for the wrecking business.

The exports of general merchandise from the port of New York for the week ended Saturday, December 6, as summarized by the Journal of Commerce, amounted to \$9,456,220, or more than \$4,000,000 increase on the previous week. The chief items are 9,505,000 pounds of cut meats, 6,496,314 pounds of lard, 7,175,114 gallons of petroleum, 1,167,366 pounds of tallow, 1,381,338 pounds of cheese, 749,009 bushels of wheat, 613,754 bushels of corn, 273,599 pounds of butter, 246,416 pounds of manufactured tobacco, 174,094 barrels of flour, 86,626 bushels of rye, 25,401 bales of cotton, 31,616 bushels of oats, 11,660 gallons of lard oil, 6,126 barrels of pork, 7,201 packages of dry goods. These figures show a large increase on those of the past eight weeks and are indicative of early improvement in business.

In the house, on the 11th, Mr. Hiscock introduced a concurrent resolution for the appointment of a joint committee to consist of five members of the House elected to the next Congress, and three Senators to investigate the capacity of the canals of the State of New York. The committee is directed to confer with a committee of like power

appointed by the legislature of New York, and with the governor and other State officers in regard to the maintenance of the canals thereof, and ascertain if said canals are sufficient for the requirements of interstate commerce, or if they should be enlarged, and the cost of said enlargement. The committee shall ascertain on what terms and conditions the United States can acquire title to and jurisdiction of said canals, or any of them. It is given authority to appoint a clerk and hold its meetings wherever it sees fit in the State of New York or the city of Washington.

MEETING OF MARINERS.

Special to the Marine Record

DETROIT, December 15.

At Red Men's Hall the International Sailors' Union delegates assembled. An auditing committee on local union accounts was appointed, consisting of James Sweeney, Daniel Cavanaugh, William Eldridge, Joseph Cosgrave and Oscar Summer. The books containing the distribution of the per capita tax are always balanced by the union, that no unequal discriminations in bearing the burdens may be made.

A committee on resolutions was appointed to draft an expression of thanks to the originator of the Plimsoll bill, which did so much for the sailors' benefit in England. Mr. Plimsoll is now in Toronto, and the resolutions will be sent to him there when adopted.

A Committee on Ways and Means was appointed, consisting of William Saliman, Buffalo; Alex. Skilan, Oswego; J. T. Carey, St. Catharines; Joseph Cosgrave, Chicago; Andrew Forbes, Detroit.

The Convention then took up the discussion of the bill which was introduced in Congress, February 18, 1884, by Martin A. Foran, of Cleveland. This bill regulates the number of able-bodied seamen which steam and sailing vessels of stated tonnage shall carry as a crew, the accommodations which shall be furnished, and the general treatment of the men. It provides for inspection of all vessels, and makes sailors' wages a lien on the boat. The loading of vessels is regulated, and it prohibits the discharge of American sailors at Canadian ports. Penalties are provided for the non fulfillment of its provisions. President Powers in his report said, "The increase from local unions to the international fund is about 6,000 per annum. The dues paid by \$6,000 members is 35 cents per month, from which the local union expenses are paid. An assessment of five cents per member is made upon each death, which amount goes into the general fund. From this, burial expenses and sick benefits are paid. There is an immense amount of mutual comfort brought about through the influence and power of this Union."

THE CENTURY

IN 1885.

A GREAT ENTERPRISE.

PAPERS ON THE CIVIL WAR.

The important feature of THE CENTURY MAGAZINE for the coming year—indeed, perhaps the most important ever undertaken by the magazine—will be a series of separate papers on the great battles of the war for the Union, written by general officers high in command upon both the Federal and the Confederate sides—General Grant (who writes of Vicksburg, Shiloh and other battles), Generals Longstreet, McClellan, Beauregard, Rosecrans, Hill, Admiral Porter, and others. The series opens in the November Century with a graphically illustrated article on the battle of Bull Run, written by the Confederate general, G. T. Beauregard. Brief sketches, entitled "Recollections of a Private," papers chronicling special events, descriptions of various auxiliary branches of the service, etc., will supplement the more important series by the various generals.

A strict regard for accuracy will guide the preparation of the illustrations for the Century.

In the line of fiction the Century will maintain its prestige, and furnish the best stories by American writers that can be procured. In November begins a new novel by W. D. Howells, author of "Venetian Days," "A Modern Instance," etc. This story deals with the rise of an American business man. A novel by Henry James, a novelette by Grace Denio Litchfield, and short stories by "Uncle Remus," Frank R. Stockton, H. H. Boyeson, T. A. Janvier, H. H. Julian Hawthorne, and other equally well-known writers will appear at various times.

Under the heading of miscellaneous features may be included a series of papers on the cities of Italy by W. D. Howells, the illustrations being reproductions of etchings and drawings by Joseph Pennell; a series on the new Northwest being an interesting group of papers by E. V. Smalley, Lieutenant Schwatka, Principal Grant (of Kingston, Ontario), and others, descriptive of little-

known regions; papers on French and American art—sculpture and painting, with some exquisite illustrations; papers on astronomy, architecture and history, the first being by Professor Langley, and others. Under Architecture are included more of Mrs. Van Rensselaer's article on churches, city and country houses, etc. Colonel George E. Warrington, jr., will describe progress in sanitary draining; E. C. Stedman Edwin Gosse, and others will furnish literary essays; George W. Cable will contribute in various ways; several papers on sport and adventure will soon be published, and John Burroughs will write from time to time on outdoor subjects.

Readers of the CENTURY may feel sure of keeping abreast of the times on leading subjects that may properly come within the province of a monthly magazine. Its circulation is now about 140,000 monthly, the November number exceeding that figure. Subscriptions should date from this number, beginning the war series and Mr. Howell's novel. Price \$4.00 a year, 35 cents a number. All book sellers and news-dealers sell it and take subscriptions, or remittances may be made to publishers.

A free specimen copy of the CENTURY will be sent on request. Mention this paper.

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Opening December 1, 1884; Closing May 31, 1885.

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Eastward.	Arrive	Depart.
No. 4, Fast Limited Express.....	9 10 A M	9 25 A M
No. 8, N. Y. & A. Express.....	9 35 A M	9 50 A M
No. 26, Elyria Accommodation.....	10 05 A M	10 20 A M
No. 35, Buffalo Accm via Sandusky.....	10 35 A M	10 50 A M
No. 35, Toledo Accm via Norwalk.....	10 35 A M	10 50 A M
No. 12, N. Y. & B. Express.....	1 55 P M	2 25 P M
No. 14, Special N. Y. & B. Express.....	5 00 P M	5 20 P M
No. 2, Night Ex via Norwalk.....	9 40 P M	10 00 P M
No. 22, Night Ex via Sandusky.....	10 42 P M	11 02 P M
No. 26, Conneaut Accommodation.....	14 25 P M	14 40 P M

Westward.	Arrive	Depart.
No. 1, Fast Limited Express.....	11 35 A M	12 05 A M
No. 26, High Express via Sandusky.....	12 15 A M	12 35 A M
No. 3, Chicago Express via ".....	12 05 A M	12 20 A M
No. 26, Mich. Accm Norwalk.....	12 50 P M	1 10 P M
No. 21, Toledo Ex via Norwalk.....	12 50 P M	1 20 P M
No. 5, St. Louis Ex via Sandusky.....	12 05 P M	12 20 P M
No. 9, Ohi. Pac Ex via Norwalk.....	12 10 P M	12 30 P M
No. 31, Elyria ac to Elyria only.....	14 30 P M	14 40 P M
No. 27, Conneaut Accommodation.....	18 10 A M	18 20 A M

Sunday train for Nottingham—Depart 8:30 a. m., and 1:45 p. m.; returning, leave Nottingham at 9:05 a. m. and 3:45 p. m.

Reference marks—Daily, † daily, except Sunday, ‡ daily, except Monday.

For full information as to trains and connections apply at the new city ticket office, corner Seneca and St. Clair streets, Lake Shore block.

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GOING EAST, LV.	AR	GOING WEST.
A. M.		P. M.
7 50	Chicago.....	7 50
9 45	Valparaiso.....	5 42
P. M.		
1 50	Fort Wayne.....	1 50
2 05	New Haven.....	1 55
A. M.		A. M.
3 56	Lafayette.....	11 50
4 49	Arcadia.....	10 34
A. M.		P. M.
6 50	5 00	10 22
7 35	6 45	9 44
8 15	6 20	9 10
10 49	9 02	6 45
P. M.		P. M.
12 05		3 44
12 58		2 51
1 42		2 29
2 41		1 23
A. M.		A. M.
4 19		11 24
5 55		9 50

Through tickets to all points are on sale at principal offices of the company at LOWEST RATES for any class of tickets desired. Baggage checked to destination. For information, call on nearest agent of the Company, or address

Gen'l Passenger Agent,
LEWIS WILLIAMS,
General Manager, Cleveland, O.

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Commencing Sunday, November 23, 1884, trains of the Bee Line—Cleveland, Columbus, Cincinnati & Indianapolis Railway—will leave and arrive at Cleveland as follows, CENTRAL STANDARD TIME, 33 minutes slower than Cleveland time:

	Depart
No. 3, Columbus, Cincinnati & Ind. Ex.....	5:00 A M
No. 23, Gallon & Wheeling Express.....	6:30 A M
No. 9, Col. Cin., Ind. & St. Louis Ex.....	6:50 P M
No. 5, Col. Cin., Ind. & St. Louis Express.....	9:15 P M
No. 27, Gallon & C. L. & W. Acc.....	2:30 P M
No. 29, Massillon & Ulrichsville Ex.....	4:30 P M
Arrive.	
No. 8, Col. Cin. Ind. & St. Louis Exp.....	6:40 A M
No. 20, Ulrichsville & Massillon Ex.....	8:55 A M
No. 2, Col. Cin. & Indianapolis Express.....	9:50 P M
No. 14, St. Louis, Ind. Cin. & Col. Ex.....	9:45 P M
No. 22, Gallon Acc.....	9:20 A M
No. 26, Wheeling Accom.....	4:15 P M
No. 4, Col. Cin. & N. Y. Express.....	1:35 A M
Trains marked * daily, all other trains daily except	

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Central or Ninetieth Meridian time, 33 minutes slower than Cleveland city time.

Until further notice trains will leave from the new Central Depot, South Water street and Viaduct as follows:

7:20 a. m.	ATLANTIC EXPRESS—(Daily) Pullman sleeping and hotel coaches from Leavittsburg 9:10 a. m. to New York, Albany and Boston without change. Arrive at Meadville at 11:25 a. m. (dinner) Franklin at 12:08 p. m., Oil City 12:30 p. m., Corry 1:14 p. m., Jamestown (Lake Chautauque) 2:12 p. m., Buffalo 5:50 p. m., Rochester 6:20 p. m., Hornellsville 6:40 p. m. [super]; Corning 7:25 p. m., Elmira 8:05 p. m., Binghamton 10:05 p. m., Albany 5:00 a. m., Boston 2:05 p. m.; arriving at New York 6:15 a. m.
7:20 a. m.	PITTSBURGH EXPRESS—Daily—Through without change. Arrives at Youngstown 9:55 a. m., Sharon 10:55 a. m., Shamburg 11:05 a. m., Pittsburgh 12:45 p. m.
2:30 p. m.	LIMITED EXPRESS—Through Pullman sleeping coach from Cleveland to New York. Arrives at Meadville at 6:30 p. m., Jamestown 8:47 p. m., Salamanca 9:45 p. m., New York 10:25 a. m.
2:30 p. m.	PITTSBURGH, WASHINGTON AND BALTIMORE EXPRESS—Daily—Through without change. Arrives at Youngstown 5:50 p. m., Pittsburgh 8:00 p. m., Washington 7:09 a. m., Baltimore at 8:19 a. m.
4:00 p. m.	MAHONING ACCOMMODATION—Leavittsburg 6:55 p. m., Sharon 7:50 p. m., Shamburg 8:00 p. m. Daily except Sunday.

11:00 p. m. NIGHT EXPRESS—(Daily except Sunday) Sleeping coach from Cleveland to Hornellsville. Arrive at Meadville 3:25 a. m., Corry 4:59 a. m., Jamestown 5:57 a. m., Salamanca at 7:10 a. m., Buffalo 9:20 a. m., Niagara Falls 11:50 a. m., Rochester 12:58 p. m., Hornellsville, 11:00 a. m., Corning 12:07 p. m., Elmira 12:40 p. m., Binghamton 2:19 p. m., New York 9:10 p. m.

11:00 p. m. PITTSBURGH, WASHINGTON AND BALTIMORE EXPRESS—Wagner Sleeping Coach, Cleveland to Pittsburgh without change. Arrive at Youngstown at 2:00 a. m., Pittsburgh 5:55 a. m., Washington at 7:30 p. m., Baltimore at 8:30 p. m. Trains arrive at Cleveland, 6:20 a. m., 10:08 p. m., 12:50 p. m., and 6:15 p. m.

This is the only route by which passengers can reach Corry, Elmira, Binghamton, New York City and intermediate points without change. No change to Boston and New England Cities.

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The Marine Record.

Published Every Thursday at 144 Superior Street, [Leader Building.]

A. A. POMEROY, Editor and Proprietor.

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CLEVELAND, OHIO, THURSDAY, DECEMBER 19.

CONVENTION OF LIFE SAVERS.

The life savers of the Ninth district, comprising Lakes Ontario and Erie, were in session at Buffalo on the 16th inst., under call of D. P. Dobbins, Superintendent, and much interesting business pertaining to the service was transacted.

The first organized attempt at saving life endangered by wreckage was inaugurated by the Massachusetts Humane Society, in 1782, but the true inception of the United States service, says Captain D. A. Lyle, U. S. A., in a paper read before a Massachusetts society, was in 1848, and since that time, notwithstanding reverses, inadequate appropriations, etc., the service has steadily advanced in efficiency. The service was finally established on its present enlarged basis in 1878, after years of struggle, and consists of 189 stations, of which number thirty-seven are on the lakes, and all are provided with the best approved apparatus for quick and efficient action. During the more inclement months, dangerous shores are constantly patrolled and many a shipwrecked mariner has had cause to be thankful in his heart for the speedy succor afforded him by the government, through the instrumentality of the brave and hardy surfmen of these life-saving stations. In almost every attempt at rescue, the life savers place themselves, without hesitation, in peril very nearly equal to that of the people whom they go to succor. Therefore their work cannot be extolled too highly by the American people, or their services too generously recognized by the United States Government. On this ground we enter a protest against the discharge of the surfmen at the end of the active season of navigation, for the reason that they have, during one or two summer seasons, become trained in the uses of their apparatus, skilled in the management of the boat, and reliable in the time of danger, when quick apprehension of what should be done is one of the characteristics necessary and can be acquired only by experience and the captain in charge can depend that it will be done speedily and right, without a fear of personal danger. Not only this, but the six months work as life savers unfits the crew, in a measure from following mechanical pursuits during the winter months, even considering that they can procure employment, which is not always possible, as a great number of men are thrown out of their usual occupation at the beginning of winter and fill the demand for labor before the members of the life saving stations are discharged.

The sentence of Captain Dudley and Mate Stevens, of the British ship Mignonette, is commuted from hanging to six months' imprisonment without labor, for so-called cannibalism.

CLEVELAND HARBOR OF REFUGE.

The following report of the corps of engineers, appointed in this interest on the 10th of September, has been approved by General Newton, Chief of Engineers, and by Secretary Lincoln, of the War Department, and the plan proposed will be carried out as fast as appropriations can be secured for the work. The plan is virtually that recommended by L. Cooper Overman, Major of Engineers, U. S. A., in charge of this district, and a committee of vessel owners, and which our readers will recognize as having been advocated by the MARINE RECORD some months ago. It is preferable to the old plan of extending the east pier a thousand feet or more into the lake. It will afford a safe and convenient anchorage for vessels in all kinds of weather, and, with the present breakwater, will constitute a harbor of refuge equal to any on the lakes.

From information laid before the Board by members of the Cleveland Board of Trade, the Ship Owners' Association and others, it appears that while the construction of the west breakwater at Cleveland, O., has formed a harbor of refuge there of great value to navigators, still, during the heavy gales from the northwest it is not always possible for vessels seeking the port to obtain immediate shelter under the lee of the breakwater, because the current produced by the winds tends to carry them into the rough water to the eastward of the east pier, where they are in danger of being wrecked unless rescued by steam tugs, which are not always available for the purpose, and even when available are not always of sufficient power to give the aid required. The present plan for the completion of the harbor provides for the extension of the east pier to a point abreast of the eastern end of the coast breakwater and 350 feet from it. While this plan secures a good entrance for vessels in most conditions of wind and weather, it affords no help to those, which, missing the entrance by accident, are driven to leeward, where they are almost certain to go ashore.

The change of plan proposed by Major Overman, upon which we are required to report, consists essentially in omitting the proposed extension of the east pier and building instead of it an eastern breakwater detached from the shore, leaving between the two breakwaters an opening wide enough to serve as an entrance for vessels in all states of the weather.

The board is of the opinion that the proposed change is one that will add materially to the value of this harbor as a harbor of refuge by providing a shelter behind the east breakwater for vessels which, after passing the eastern end of the west breakwater, may be carried to leeward, as before described, and that the change ought to be made.

In regard to the plan on which such a work should be built, it is desirable that it should be such as to cover the largest possible amount of room for anchorage and for handling vessels, and that its outline and position should be such as to guard the entrance from the dangerous cumulative wave to which it would be exposed during easterly gales, were a long, straight breakwater to be built there.

The position of the west breakwater now constructed fixes the distance from the shore beyond which the proposed east breakwater cannot be carried without impairing the value of the harbor as a harbor of refuge. With this as one limit, the greatest amount of room for anchorage would be secured by constructing the east breakwater on the prolongation of the lake arm of the west breakwater; but the necessity for preventing the formation of the dangerous wave before referred to forbids the adoption of this line.

The board is of the opinion that a sufficient amount of room and the necessary protection will be obtained by giving to the new work a broken outline, convex toward the lake; and that the remedy for the obstruction of the harbor now complained of, caused by vessels anchoring where they please, and in such a way as to hamper the movements of those that follow them, and so as to endanger them, is to be found in the employment of a harbor master, authorized to enforce his orders and furnished with a seagoing tug. For these reasons the board recommends that the east breakwater be built on the following lines: Beginning at a point on the prolongation of the lake arm of the west breakwater, and 500 feet from it, and running 500 feet on that prolongation; then inclining toward the shore about twenty degrees and running 1,000 feet in that direction; thence on a course parallel to that proposed by Major Overman 2,000 feet further, stopping in a depth of about twenty-five feet of water, 2,600 feet from the shore, leaving between its eastern end and the fourteen feet curve an entrance about 1,200 feet wide. The cross section of the new work should be about the same as that of the west breakwater.

Such a breakwater would give an increased area for anchorage between it and the fourteen feet curve of about 120 acres during northwest gales, and about 70 acres during northeast gales. It would protect the present harbor on the west side during easterly

gales, and would afford safe and convenient anchorage for vessels running into the harbor during westerly gales.

The board also recommends the construction of a parapet about four feet high and sixteen feet wide on the present west breakwater, to prevent the pouring over into the harbor of the large volume of water thrown thereon during heavy gales, which, it is asserted, raises the level of the water within the harbor to such an extent as to produce a very strong current out of it at the entrance. The cost of such a parapet would probably be about \$60,000, and the cost of the proposed east breakwater, 3,500 feet long, would be about \$440,000, making a total of \$500,000.

The estimated cost of this harbor of refuge, as originally projected and approved was \$1,800,000. The amount expended up to the present time, the west breakwater being completed as originally designed, is \$800,000. If the work now recommended be constructed, the total cost of the harbor of refuge under the project now submitted, will be about \$1,300,000, which is \$500,000 less than the original estimate.

The board further recommends, in order that the present harbor may completely fulfill the objects for which it was constructed: that a harbor master be appointed and that a strong sea-going tug be employed during the season of navigation to tow in and place vessels which cannot be handled by the river tugs. Respectfully submitted,

WALTER MCFARLAND,
Lieutenant Colonel of Engineers.
JOHN M. WILSON,
Lieutenant Colonel of Engineers.
L. COOPER OVERMAN,
Major of Engineers.

ARRANGEMENTS have been made at the navy department for an expedition to survey the proposed route of the Nicaragua canal. The expedition will be under the command of civil engineer A. G. Menocal assisted by Civil Engineer Robert E. Peary of the navy and Ensign W. J. Chambers. The expedition starts on the 20th inst.

LOW PRESSURE VS. COMPOUND.

CLEVELAND, December 16.

To the Editor of the Marine Record:

Compound, it seems, is still on deck, but, in my opinion, does not defend the cause as well as he might. He certainly makes a misstatement when he says that in my letter of October 30th I stated that I was in favor of the compound engine. Have him readjust his eye glasses, and he will read in your paper of October 30th that I stated I was not against the compound engine, nor am I. Some of them have given better satisfaction than some low pressure engines, and the two low pressure steamers that I have referred to have not been beaten for economy of fuel, that I can learn, by any steamer on the lakes; hence, I claim that it is apparent that a rightly gotten up low pressure engine and boiler have not as yet been excelled. I am not advertising any make of engine, though those two I have spoken of are the make of a Detroit firm. Compound evidently goes on the theory principle, I should judge, by his figures. That is all very well, so far, but what steamboat owners want is a practical showing of work done and fuel consumed. It would, I think, very much surprise Compound were he to know the party who preferred the high pressure engine to the low. I am not prejudiced, or I would not cite cases where parties prefer the high to low pressure. I asked my first letter the advantage of the extra cylinder and connections, and have not as yet been satisfactorily answered. My opponent has not given practical demonstrations to back up his theory. Mississippi river explosions are still quite fresh in people's minds, so that does not argue very well in his favor. I am well aware that on the ocean they are using a great many compound engines, but on the lakes the boats I have mentioned have not been excelled for economy of fuel, either in the high pressure, low pressure, or compound. I am in for improvements if they are really so, but when the best compound does not excel the best low pressure (if they equal it,) why not let it be known. Evidently, Compound is all compound, and doesn't think any other engine is worth mentioning. No use of continuing the correspondence any longer. He may well say that it is Arctic weather when those low pressure boats I have mentioned get left. Till a practical demonstration refutes the above,

Au revoir,

LOW PRESSURE.

Captain Ed. Quigly, well known as the builder and captain of the steamer Lady of the Lake, committed suicide here Tuesday by cutting his throat with a razor. The captain was much respected, and this rash act casts a deep gloom over the community. He leaves a wife and nine children. Financial reverses supposed to be the cause. Add Buffalo.

THE ACCIDENT TO THE W. A. HASKELL.

Numerous theories having been advanced regarding the accident to the steamer Haskell in the St. Lawrence, it has been deemed advisable by an eye witness to give the following detailed account of the cause, which will be found very comprehensive, and which will put other masters on their guard while navigating these waters, especially when it is considered that the water in the St. Lawrence river since June has fallen quite four feet and these dangerous cove like rocks are likely to be found quite frequently with but a few feet of water over them, while on either side of them the sounding line may show forty feet:

The steamer Wm. A. Haskell, of the O. & L. C. R. R. line, bound from Chicago to Ogdensburg, laden with a general cargo of merchandise, left Cape Vincent, N. Y., (where she had been waiting for daylight) at 7.55 a. m. Wednesday, December 3. The steamer came on down the river in the usual manner until about 1½ miles above Dark Island, when there was a sudden crash and the Haskell was thrown over on her beam's end. After righting, pumps were started and on an investigation it was found that she was leaking badly. At this time her own pumps could not keep her free, so Captain Millen decided to run her into shoal water and accordingly she was headed for a small bay in Oak Island where the chart made 16 feet of water with mud bottom and shoaling gradually, which lies 1 3-16 miles from where she struck. On nearing the island a boat was sent ahead to sound the water to avoid any accident. The bottom being covered with weeds which, with the mud, filled the broken plank and nearly stopped the leak. On this bed the Haskell was placed, where she settled and rested very easy. The accident occurred at eleven o'clock a. m. while the captain was pacing the bridge and his steamer was running at her usual speed and on the same range as was always used at this point.

Where the Haskell struck, the U. S. lake survey chart gives 43 feet of water, and later on soundings were taken and a shoal was found with but 15 feet of water on it. It is located 1¾ miles from Pilot Island, ½ mile from Scow Isle reef, 1 mile from 10 foot middle ground off Dark Island, square abreast of Tent Island, at a distance of 2,250 feet directly on a line from mid-channel between Sisters' light and Pilot Island heading on Chippewa Point. It is thought that it is not over 20 feet square on the top, with enough water on either side to sink the Haskell out of sight. A buoy was placed on the rock which will hereafter be known as "Millen's Shoal" in honor of Captain Millen, who had the unpleasant experience of finding it.

Immediately after the Haskell was run aground dispatches were conveyed to Hammond which was reached after a mile and a half pull in a small boat, half a mile on ice, and three miles with a horse. On receiving dispatches at Ogdensburg an expedition was at once fitted out, and Manager McQueen left with the tug Curlew, a lighter and about 28 men for the scene of the disaster, and arrived there at ten minutes past ten that evening. Operations were at once commenced to lighten the steamer, and about 500 tons of bran and flour in bags were taken out. A diver was then sent down and on coming up reported a hole in line of the forward fender which was filled with grass and mud, also a rip of about twelve feet in one of the planks; this, with a few minor defacings, completed the amount of damage done. The next step taken was to stop the leak if possible. Accordingly the Haskell was moved into deeper water so as to enable the diver to work. After she was floated into deep water it was found that her own pumps kept the water at bay. The foresail was then passed under her bow over the leak and made fast in that position. At 2:46 p. m., Friday, the Haskell was headed once more for her destination—which was reached at 6.45 p. m. Wells were sounded after getting along side of the dock, and the forward one was found to contain 5 inches, and after one 2½ inches of water, which was a very satisfactory showing. But little of the cargo was damaged.

The coolness and excellent judgment of Captain Millen is apparent when we take into consideration that 4 feet of water was found on sounding the wells immediately after striking, and in less than ten minutes the Haskell was safe on the bottom at the very best possible point for such a purpose in the river, and on the American shore where she was not at the mercy of the Canadian wreckers. Otherwise, not only a fine, noble boat and her cargo would have been strewn along the bottom of the St. Lawrence, but perhaps the bodies of those who expected to enjoy the comforts to their firesides in a few days, would have mingled with the wreck and ruin.

And they can be thankful to Him who guides the sailor in the time of trouble, for guiding the Haskell to a place of safety in this case.

It is said the little steamer Masasauqua, at Pine river in winter quarters, is to be considerably overhauled this winter.

DETROIT.

Special to the Marine Record

December 16—The fact that navigation, at this writing, is yet unobstructed and a few craft yet out, renders it certain that the season is not yet over with, and it is by no means improbable that there may be further disasters to record.

The steamer Idlewild continues plying on advertised time between this port and Port Huron, and is doing a fair business. The propeller City of New Baltimore is also running on her route, and will continue to run until shut in by ice.

The steambarge Mackinaw, with her consort, which left here some days ago for Alpena, have not yet returned, and are expected here to-morrow or next day. She was heard from yesterday, storm-bound at East Tawas, but as Captain Comer is a careful and experienced navigator, she will doubtless come through all right. The weather has set in sharp and cold and it is fair to presume that the close of the season is not far off. It is snowing freely here, with wind from the southwest.

The propeller Oconto is also due from Alpena, and is expected to arrive to-morrow. On her arrival here she will discharge at this port, and will at once lay up.

The sailors' convention is preparing a new bill, which is intended to be a substitute for the Foran bill, but which is more moderate than that bill and will benefit the sailors more. As soon as the new bill is completed it will be presented and the Foran bill will be withdrawn. The constitution of the union will be revised for the purpose of ascertaining if any amendments are necessary.

The Detroit & Cleveland Railway & Steamboat Company will apply for an act empowering them to construct a railway bridge either at Windsor or Sandwich, and a railway from either point to Kingsville or Leamington.

The Belle Isle ferry ordinance, regulating the amount to be paid to the city, the time of running and the rates to be paid by passengers, was passed by the board of councilmen recently.

The tugs Gladiator and Andrew J. Smith, which are absent on Lake Superior, wrecking, have not been heard from for several days, as they are some seventy miles distant from telegraphic communication. They are expected to return here for winter quarters, if such a thing is possible, but for the above reasons nothing is known as to the success attending their movements.

Soon after sending my last communication the announcement was made of the death of Captain Charles W. Nichols, an old and highly esteemed citizen of Detroit, and widely known among lake men. At an early period of his life he followed the sea and has passed through many hair-breadth escapes. After coming to this section he sailed for several years out of Sandusky, thence came to Detroit and settled here. He commanded the propeller Edith for a few years, until she was no longer fit for service. His latter sailing was in the scow Ino, which he also owned. He leaves a widow, four sons and two daughters, and died at the age of sixty-five. His funeral had a respectable attendance.

The present season will close with quite a number of stranded or wrecked vessels still out which will remain imperilled, if not lost beyond recovery, until the spring.

The steamer City of Dresden has discontinued her trips between Detroit and Leamington. She has done a fair season's business.

The tug Wilcox is having her boiler put in good repair, and immediately after the holidays the work of repairing and reconstruction will be carried on at the various shipyards throughout.

The sailors hailing from this port, with the exceptions above noted, are housed, and as is the usual custom, while away the winter months at the sail lofts and brokers' offices reciting over the incidents of the season, the adventures they have passed through, and the narrow escapes with which they have met.

The steambarge C. N. Pratt, tug Bob Hackett and schooner E. Rathbun are all that are laid up at Windsor the present winter.

The following wrecking expeditions were performed by the line of tugs owned by Captain S. B. Grummond: May 7th, tug

Champion, rescue of the barge Charles Hineckley, ashore high and dry at Bar Point. Tug Martin Swain, release of the schooner A. E. Vickery, grain laden, stranded on Middle Island, Lake Huron, an important rescue. May 20th, tugs Champion and Winslow released the steambarge Rube Richards and consort from Herson's island, on the river St. Clair. June 21st, tug Champion rescued the schooner Delaware, stranded on Plumb Island, Lake Michigan, which was attended with much hazard. June 21st, tug Champion released the schooner H. W. Sage, stranded on Fisherman shoals, Green Bay, on a ledge of rocks and in a dangerous position. June 21st, tug Winslow released the schooner Three Brothers, laden with stone, stranded in Lake Superior. June 22d, tug Champion rescued the steambarge O. Townsend, stranded on Poverty Island, Green Bay. June 26th, tugs Champion and Oswego, released the schooner M. R. Warner, stranded at the Lime Kiln crossing, Detroit river. July 2d, tug Champion released the schooner John Kelderhouse, stranded on Hog Island reef, Lake Michigan. August 3d, tug Winslow rescued the schooner Lottie Cooper, ashore near Port Sanilac, Lake Huron. September 25th, tugs Champion, Winslow and Oswego rescued the schooner Monticello, which was in collision with the schooner J. T. Mott, Lake Erie. September 27th, tug Winslow released the steambarge Manistique, stranded at Black River, Lake Huron. November 21st, tugs Winslow and Swain went to the propeller Scotia, stranded at Keweenaw Point, Lake Superior, which was found beyond recovery and broken up. November 21st, tug Champion rescued the barge Dan Rodgers, waterlogged in the Straits, and brought her to Detroit. November 10th, tug Winslow went to the schooner Lady Dufferin, stranded on Cariboo Island, Lake Superior; not released. Tug Martin Swain went to the schooner C. J. Wells, stranded on Whisky Island, and a total loss. J. W. H.

BAYFIELD.

A terrible storm is raging here. A three-master vessel came ashore Tuesday evening some distance up the lake. The crew were saved, but owing to the wreck being so far away it is impossible to ascertain the name of the craft to-night.

MILWAUKEE.

The schooners Isabella Sands and Arendal, light from Chicago for Manistee to lay up, and the scow Dan Hayes, from this port for Frankfort, which was obliged to run back, were sheltered in the harbor, last Thursday. A heavy northerly sea was running outside.

The arrivals were the steambarges R. J. Ingersoll, lumber laden from Muskegon; Daisy Day, with wheat from Ahnapee, G. T. Burroughs, with ties from Ephraim, and the propellers Oneida, from Grand Haven, and F. & P. M. No. 2, from Manistee. The Daisy Day and Burroughs return for grain cargoes.

LACHINE.

Captain Stewart, of the steamer Beauharnois, running between Lachine and Chateauguay, disappeared a few days ago from his boat, which was lying in winter quarters at Lachine. Nothing was thought about the matter at the time, as it was supposed he had gone home to his family, but December 10th his body was found in the canal between the wharf and the boat. Deceased was about thirty years of age.

AMHERSTBURG.

The steamer City of Dresden passed down last Thursday on her last trip to lake shore ports, this season. The boat officials are negotiating with the Amherstburg merchants, so that their merchandise will come via Windsor and boat, and if arrangements are satisfactorily completed the Dresden will run between this city and Windsor as long as the weather will permit.

PRESQUE ISLE.

The steambarge Lothair left Owen Sound Sunday morning for Parry Sound, but after passing Griffith Island it came on a dense snowstorm. She returned here. She will try again to make Parry Sound.

ALPENNA.

The steamers Oconto, Remora, and tug Fisher arrived on the 14th. The Oconto cleared for Detroit, the Fisher for Lake Michigan. The Remora goes on the route between Alpena and Oscoda. No ice.

BUFFALO.

The tug Anna P. Dorr, owned by Cheney & Jones, caught fire on the evening of the 10th while she was being laid up opposite the foot of Main street. Her upper works were destroyed and her hull badly damaged. She was valued at \$7,000, and damaged to the extent of \$4,000. Insured. Cause of fire unknown.

Joseph Criqui, master of the steambarge Nevada, was on trial last Thursday morning before Thomas M. Van Valkenburg, United States Supervising Inspector of vessels in this city, on charge of conduct which should merit the revocation of his license as captain. It is charged by Walter Hunter, deck hand, that the captain was drunk many times during the past season while in command of the barge and had endangered the lives of those on board; that he also on one occasion drew a revolver and threatened to shoot complainant. The case was tried before the Board of Local Inspectors a short time ago, and resulted in the withdrawal of the captain's license, and it now comes before Inspector Van Valkenburg on appeal.

The propeller Keystone came up from Tonawanda, and will be placed in drydock for a survey.

Spencer Clinton, of the law firm of Marshall, Clinton & Wilson, Saturday received from the Union Insurance Company, through Messrs. Smith & Davis, commissioners for the lake hull pool of 1884, checks amounting to over \$13,000, being full payment of the claim of Lorenzo Dimick, general agent of the Continental Insurance Company, including interest and all costs in the case. This payment releases the property of the Union Insurance Company, attached by the sheriff when action was commenced by Mr. Dimick to collect his claim, which was for balances on the hull pool settlements.

A terrific gale struck this city at 6 o'clock Monday morning, preceded by a remarkable fall of the barometer. At 7 o'clock it was blowing fifty-two miles an hour, which increased two hours later to sixty-four miles. The water in the river and harbor rose until it flooded the lower part of the city, filling the cellars, and in some places standing three or four feet deep in the streets. Great damage was done by the wind all over the city. The fury of the storm on Lake Erie was terrible, waves breaking over the sea wall and throwing the spray 100 feet high. The island was depopulated, and the gale carried the waves clear over it. In the rear of the sea wall was a row of houses occupied by sailors' and fishermen's families. Fifteen of these houses were destroyed by the storm, the occupants being obliged to escape in boats. Further along the coast other houses were blown down, and large lakes of water were formed about them in which floated bedding and family utensils. The sea wall itself could not stand against the elements, and a section fifty feet long was washed away. A large amount of lumber was lost. Two canal boats broke away from their moorings, crushing into the Commercial street bridge and doing it great damage.

There are still no tidings of Captain Robert L. Byers, who disappeared from his home on Wednesday, 10th inst. Search was continued wherever there was any thought of finding him. As he went away from home under circumstances which gave grounds for a suspicion of his being deranged much time has been spent in searching the canal, which is not far from his home. Besides dragging it a cannon was mounted on a tug and fired over the water. Stories set afloat as to traces of blood having been found are pronounced false. He left home as stated and here his known history stops. A reward of \$50 was offered for news of him and it is now proposed to raise the amount to \$100. The search will be continued by friends, though it is generally the opinion that he will not be found alive. Captain Byers was one of the best known of those in the marine interests here, as he had been in the tug business since 1866. His quiet, retiring, yet decided and upright character won him the esteem and friendship of all. He was about forty-seven years old. As a boy he sailed on the side-wheel steamers then common on the lakes, and during the war he was of great value to the Union cause as captain of a supply steamer at Fortress Monroe. He owned interests in the tugs Fiske and Bryant of Hand's Line and was agent of the Union drydock.

Immensely increased receipts of lumber by lake at Tonawanda now make its claim of being next to Chicago the greatest lumber market in America well founded. The amount for 1884 is 493,268,223 feet, against 399,121,269 feet in 1883, and 433,241,000 feet in 1882. The increase of shingles and lath is correspondingly great.

Lorenzo Dimick & Bro. yesterday received a telegram stating that the tug A. J. Smith had been driven from the wreck of the propeller Morley and asked that the tug's insurance be extended five days. It was done.

OSWEGO.

The Times says the tug Ferris, the last of the tugs on duty went into winter quarters on the 12th.

The breach in the outer breakwater is 90 feet in length and extends twelve feet below water. It is at the place that has been similarly breached four times before. The breakwater showed signs of giving way at this point in the gale of November 7th-8th and the work was then strengthened by buttresses so as to limit the breach to the portion which has now gone. Accurate measurements were made of the winds velocity at the outer beacon, where a higher rate of speed was to be expected than at the signal office. A self-registering signal service anemometer was used and a velocity of sixty six miles per hour was recorded. A similar record at the signal office at the same time showing thirty-seven miles per hour. The height and velocity of the waves were measured just before, and at the instant when the breach occurred. The wave which swept fifty lineal feet of the parapet into the harbor, was seventeen feet in height above smooth water level, and the valley before it was twelve feet below the same plane. The speed of the wave was thirty-four miles per hour.

KINGSTON.

The steamer Crusoe has gone into winter quarters at Parrott Bay, where she will be rebuilt by Captain Pierce.

The schooner Herbert Dudley cleared for Oswego on the 10th with a load of barley. It is probable she will make two more trips this season.

The steamer Ida, Captain Garrett says has not been sold. She will be improved and next summer will make two trips per week between Kingston and Ottawa.

The steamer Deseronto arrived here from Gananoque, in a disabled condition, last week.

The Collinsby Rafting Company had a fair season, the quantity of timber rafted, being about the same as last year, but exceptionally good luck was experienced in going through the rapids. The company intends making two rafts at French river next spring and towing them down the lake. Although the rafts met with a disaster last season another effort will be made to make the undertaking a success.

The three sisters—sloops Idlewild, Minnie and Home—will go into winter quarters this week.

The tug Seymour arrived from Ogdensburg on the 12th with the barge Acadia, which will receive repairs here during the winter. She steamed out of the harbor this morning on her return with all her flags flying.

The Richelleu & Ontario Navigation Company intend applying to Parliament for a provision in the charter to issue debentures of the value of \$240,000 for the purpose of buying up \$400,000 of the watered stock at fifty cents on the dollar. In this way the shareholders will effect a gain of \$15,000 on the expenditures, and the capital will be reduced in twelve years from \$1,400,000 to \$1,200,000 with the bonds redeemed. Labor at the present time being cheap at Sorel it has been decided to have the company's steamers placed in repair at once instead of waiting until the spring, as usual.

EAST TASAS.

Snow fell to the depth of four inches Sunday night. The steambarge Mackinaw ran in here for shelter, bound to Detroit, and reports a terrible night on the bay. During a calm Monday afternoon she left this port.

The steamer St. John arrived on the 9th with supplies from Bay City. The lake is free of ice, with nothing to hinder navigation.

The life saving station closed Tuesday night, and the storm signal station closed today. The lake is open. Wind northwest.

VITAL PRINCIPLES.

LOCKPORT, December 15.

To the Editor of the Marine Record:

I am aware that the aim of your paper is to be neutral in politics, but I think that impartial history, devoid of partyism, will be good matter for you to insert and "hit the needs of the times." The President, in his recommendations to Congress, especially in marine matters, does not cover vital points. Please note a quotation as follows: "I can not too strongly urge upon its attention the duty of restoring our navy as rapidly as possible to the high state of efficiency which formerly characterized it." The President here cites a precedent which never had an existence, and leaves the future to take care of itself. England's "wooden walls" have for ages back sailed the ocean. But they, from modern improvements, have now become obsolete. In its haste to replace them with iron-clads, as iron steam-propelled ships, she has so far over-shot the mark as to now be at least a third-rate power. Her monstrous iron-clads, rolling, tumbling, deep-draft tube, with no commensurate speed, are of but little use to protect her commerce. We, at this time, in relation to the necessities to be met by a navy, stand next to no rate. In the war of the revolution we had no navy. As a substitute, we had, and used, a few (extemporized) cruisers, (privateers.) In the war of 1812 our navy was small in comparison to England's vast fleets. In that war we found that our fast frigates and sloops-of-war were of the most value. In the war with Mexico our navy was used mainly as transports. In 1861 it was found that we had no navy competent to protect our commerce. If we had been, at that time, in possession of 300 or 400 small, fast cruisers, it would have afforded us such protection to our commerce that we could have held it intact. But such was not the fact, and our flag had no protection on the ocean; our channels of trade were broken up; our ships were sold to, or sailed under, foreign flags. In this way our trade has passed from us. In looking back over the page of history it is difficult to see where the efficiency that the President speaks of comes in. At no time in our history have we had a navy, as England had, to protect our commerce. In that respect we are now not much behind England. We have not much to fear from her monstrous iron-clads, and she, now, like us, has no fleet of fast cruisers. These are the only vessels that we need. Our iron-bound seaboard we can protect without large ships, but they must be a different class of vessels than the Dolphin, just built. We must have a class of vessels, small ones, proof against the motions and forces of the ocean and modern engines of destruction. Nothing of the past times can meet the necessities of the present, and the maximum of change has not yet been reached. It has now been purposed to build vessels of 20,000 tons, for commercial use, in order to get greater speed by overlapping more waves. It will be seen at a glance that no war vessels that we now have, could overtake and capture one of these large ships. The Dolphin, with her sixteen miles an hour in smooth water, would do but little toward it in the rough water of the ocean. The large vessel could steam steadily to windward with great speed, while such short, high vessels would dive and pitch and could not make speed or use their guns.

The President has said all that he could say, under the present circumstances, on naval matters, and leaves our navy in about the same condition that President Buchanan left it in 1861, that is, not competent to meet modern improvements. Excessive magnitude for a war ship has been the prevailing idea for many years back. England has expended vast amounts of money in building large ships. Now, at this late day, she sees her mistake, and must begin again, but the question is, how? We are, at this time, in the same state of doubt, and we'll we may be, for no one knows where to begin, or what the result or end will be. Cruisers, without doubt, must be the future war ships. We now have one, the Dolphin, spoken of above, and she broke down on her trial trip. It is reported that her builder said that such accidents are liable to happen to any ship, and there is no question but that is true, as at the time she broke down she was being tested in maneuvering, in turning rapidly around, as it is in action. Ordinarily, to do this the engine should have been slowed

down. But a war vessel should be proof against an extraordinary time. Such will be the case with the ship I allude to in my article in your issue of the 20th ult. Such ships as the Dolphin must, with only one steam power, be unreliable and dangerous. The one alluded to above, in this respect, will be most reliable, as she has four independent steam powers, fully protected, both from an enemy, or the forces of the ocean, and in turning quickly around, can aid each other in the movement. The Dolphin, in a rough time and running a course at right angles to the waves, must pitch, and, at times, lift her wheel out of the water. This can never be the case with the new kind of ship alluded to, as her wheels are always in uniform water, whether it be rough or smooth, and no extraordinary, or unequal strain, can be brought on her shafts. Her wheels are auxiliary, one to the other, and to her sails, and these combined are a safeguard against her being crippled. The Dolphin, at right angles to the wave and pitching from it, in meeting the next oncoming wave, must dive into it and fill her bulwarks with water. Her overhanging, full (above water) bow must lift her as the wave rolls onward, and the water that she has taken on board in her dive washes aft with great force. It is clear, that in such positions she can not use her guns. The future new kind of ship, in such positions, can not dive, or pitch, or take any water on board. She does not rise or fall, to any extent, by the motion of the waves, and can use her guns. In fact, she is steady in the roughest times.

To the reader, especially if he is a sailor, this may appear incredible, but it now is a proved fact. The little craft, Future, I now have at Boston, for three years was fully tested in many severe gales, and has run in the troughs of the waves outside and on all other courses, and no wave ever broke on her, and she was but a small thing to be in the huge waves of the ocean. I again repeat of her that she is built on pure, exact principles of science, and is the only one now in the world that has been so built, and no man can disprove them, or prove that any other vessel ever built has in her form physical principles which will render the forces of the ocean powerless.

It requires no argument to prove that the war vessel for the future must be superior to any and all commercial vessels, and have in her a power of endurance which will enable her to go to sea in all weather and remain there. Also, she must have a degree of steadiness so that she can use her guns at all times and in all positions, not excepting running in the troughs of the waves in their wildest moods. Can the Dolphin do this? She can not. Philosophically, she is one of the worst possible forms for such work. I have not seen the ship, but have before me a large illustration of her, and presume it to be like her. Her guns and turrets are on her sides, high above water. These, together with her top hamper, spars, etc., must need great counterpoise below, (ballast to keep her steady, or to give her stability.) Suppose her to be in the trough of the wave on the lee side of the oncoming next wave, her buoyancy is all of it above water, fenced in by her nearly vertical sides. The oncoming wave meets this side like a wall, and the resistance the ship offers to the passage of the wave is directly in a horizontal direction. The wave must make its escape in the direction of least resistance, for the upper portion of it. That direction is upward, until it reaches the top of her side. Then, as the body motion of the wave is onward, it goes over her. But low down in the wave the direction of least resistance takes it under the ship. As it passes the longitudinal center of gravity the windward side of the ship has become the heavier, and she has lost her balance and must fall over to windward until she pitches up on her pent up buoyancy, which will again right her, and, in the end, throw her over to leeward. In this movement there are four motions, two to incline her and two to bring her to a level. This constitutes rolling. I again say that in such a position the Dolphin can not use her guns. The cause of these disastrous motions is wrongly located buoyancy. But science, in the safety ship, has so located buoyancy as to cause it to be active at all times, and to prevent all side rolling motions, I can not, without illustrations, understandingly show just the difference in the two methods of locating buoyancy, but will say of it here that the Dolphin has body, confined above water, buoyancy which cannot act upon the wave so as to prevent her falling. The safety ship is clothed with buoyancy, so located that it can relieve the ship from all concussions from the wave, and, instead of throwing the ship to windward, throws the crown of the wave to windward into the oncoming hollow of the wave, and cuts off the lower, under-water part of the wave, so that it can pass under the vessel without distressing her. The principles which do this work are governed by physical science and can not be questioned.

The principal cause of the loss of our ocean trade and shipping was from the fact that we had no navy to protect it, and as soon as there was a prospect of war capitalists began to prepare for it by selling their ships and investing their money at home, where it would be safe. The first move is now to restore confidence to capitalists. This can only be done by an efficient navy. A naval ship, to be efficient, first, must be superior in speed to all other vessels. To get great

speed she must be as light as possible, and draw as little water as possible, in fact, be a flyer; second, she must possess an endurance so great that she can both move and do execution with her guns at the roughest time; third, her power of steam propulsion must be more than one, and so that it can be repaired at sea; fourth, she must have sails so that she can make speed without the use of her steam, so as to save coal in long voyages. The safety, scientific ship guarantees all this and much more that space at this time will not permit me to define.

We have expended since 1860, in experimenting for a navy, not far from \$500,000. It is now time that we move slowly and carefully until we are sure that we are right, "then go ahead." There is only one way to proceed under the now existing circumstances. We have been going from bad to worse. What is the reason? It is that naval architecture, as practiced, is not a science; not generally understood. Congress has for its guide an advisory board on naval matters. Why is the navy an exception? It is from the fact that all other constructions come under known science, such as is taught in our schools and is generally understood by all educated men. There is now no need of any expensive or extensive experimenting to develop the above-mentioned vital principles. All has been done, or enough to warrant bringing them home to mother science to have her adopt them. This can only be done by an act of Congress to convene a board of impartial scientists to examine into the truth. It is folly and a waste of money to build such ships to be like the Dolphin, liable to break down at any moment. Have our next war ship so that she can be at home on the ocean and proof against all of its motions.

Yours truly,

JOSEPH W. NORCROSS.

MILWAUKEE HARBOR.

Special Correspondence of the Marine Record.

WASHINGTON, D. C., December 15.

The reports of Captain W. S. Marshall and assistant engineer W. H. Harding, of the United States engineers, on the building of the Milwaukee harbor of refuge, say that it is proposed to extend the breakwater southward as far as the funds will allow, in order to make the harbor available at the earliest practical moment. It is intended to do but little, if any, work on the superstructure until the main arm is extended to shelter an area sufficient for use as safe mooring ground during northeast storms. The appropriation for the fiscal year of 1885 will prolong the main arm of the breakwater 600 feet more or less. The funds asked for the fiscal year ended June 30, 1886, are to be used to extend the main arm of the breakwater southward, and to complete the superstructure over the breakwater as far as it will have been completed. It is expected that the next appropriation will advance the work sufficiently to be available to practical extent for the purpose intended. The amount available for the fiscal year ending June 30, 1885, is \$96,098. The amount required for completion of the existing project is \$515,000. The amount that can be profitably expended in the fiscal year ending June 30, 1886, is \$800,000.

During the last fiscal year the work done was as follows: Six cribs, each 50x24x22½ feet, were sunk upon stone foundation, which finished the superstructure of the north arm, making it 2,450 feet in length, and superstructure was also built for a length of 850 running feet. The depth of water before the foundation was laid for the first of the six cribs was 26 feet; and for the last, or outer crib, 28.7 feet below datum. The cribs were sunk by the following method: First, a foundation of stone was laid for a crib as nearly as practicable to the dimensions specified in the contract, its top surface being sixteen feet wider than the width of the crib to be sunk upon it, which provided a berne of ten feet in width on its lakeward side and six feet on its landward side, the top of the foundation being laid to within a distance of about twenty-one feet below datum. The crib was then placed in position, and settled down by loading stone upon a temporary docking of loose planks until the bottom of the crib was brought to a horizontal plane at a distance of twenty-six feet below datum, at which point it was held securely in its proper position in relation to the preceding crib. Stone ballast of rather small size was then thrown into the crib, which ran through the grillage, and formed a base for the side and grillage timbers to rest upon. The crib was then filled with stone to within a distance of six inches of the top of its side timbers. Dump scows were used, as well as flat scows, in forming the founda-

tion. As soon as possible after the crib was sunk and decked with planks, large rocks weighing one and two tons each were placed on the outer slope of the foundation. Divers were employed to level off the foundation of the first crib sunk in 1883, but their efforts resulted in loss of time without effecting the desired purpose. Resort was then had to the method above described, which proved very satisfactory. The superstructure was built upon cribs, in all of which stone ballast was placed to within three feet of the top of the superstructure. Frequent examinations of the stone foundations were made by sounding, in order to ascertain whether any change was effected upon them by the action of the water during storms. The foundations have retained their shape remarkably well, their general settlement having been uniform, no very great change having been made upon them by the action of the winter storms, except at the southwest corner of the outer crib, No. 43, where the most noticeable effect has been produced, the stone having settled about two feet.

A lightship has been placed, as a warning to mariners, inside, and at the southern extremity of the breakwater, which displays a green signal light over a white light. The reason for selecting a green light for this purpose is that it may be readily distinguished from the light on the North Point, and the beacon on the north pier of the harbor entrance, which are respectively white and red lights.

The cost of the superstructure for the next 1,000 feet, from its present terminus at the angle to the proposed opening in the south arm of the breakwater, is estimated at \$126 per running foot.

In the improvement of Milwaukee harbor, the amount available July 1, 1884, was \$11,245. The amount required for the completion of the existing project is \$20,000. The amount that can be profitably expended in the fiscal year ending June 30, 1886, is \$20,000. No work has been done at the entrance to the harbor during the past year, with the exception of repairs to the piers at such points as they have been damaged by the collision of vessels, and also where it has been necessary to replace decayed timbers with new material.

New piles have been driven, to which fender timbers have been boxed during the past month. Repairs were made at the angle at the west end of the north pier, where the stone ballast and timber work had been displaced by the water of Lake Michigan, which, owing to the large quantities of sand which are constantly being taken from the beach for building purposes, flows across the point into the river during very heavy storms. The timbers of the superstructure of the extension of both north and south piers, which were built in 1871 and 1872, are becoming very much decayed and will require renewal in the course of the next two years. These extensions are each 600 feet in length. An estimate of the cost of cutting down and rebuilding the 1,200 running feet of superstructure, protecting the same guard piles, driven at distances of ten feet between centers, and reinforcing the same with oak cap timbers, and including new fender piles and bulkhead at the extremities of the piers, is \$27,523.72. In this estimate no allowance is made for stone ballast, the quantity of that material now in the piers being sufficient.

A plat of the sounding shows the depths of water in the harbor channel to have diminished somewhat during the past year, but as yet the section of channel which carries seventeen feet of water is more than 120 feet in width for its whole length between the harbor piers. J. E.

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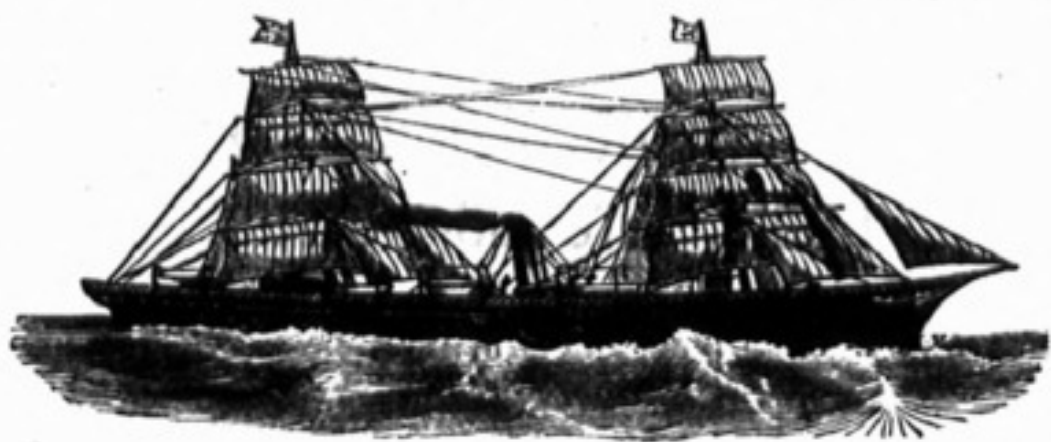
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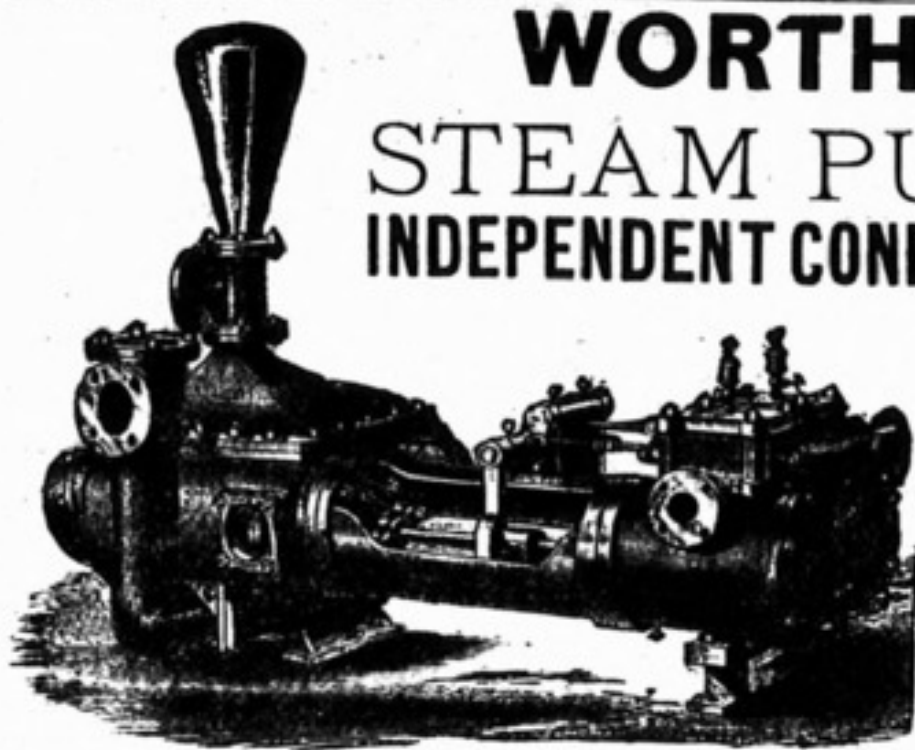
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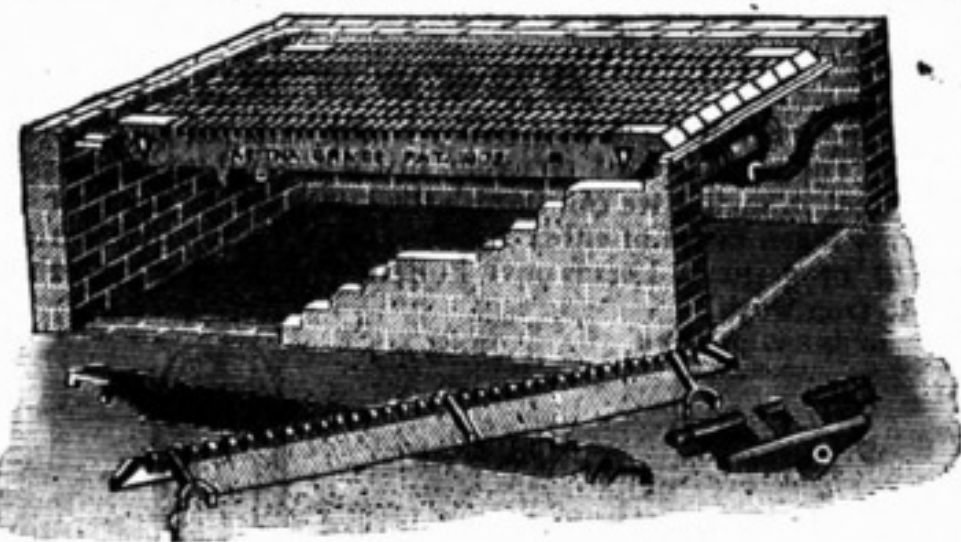
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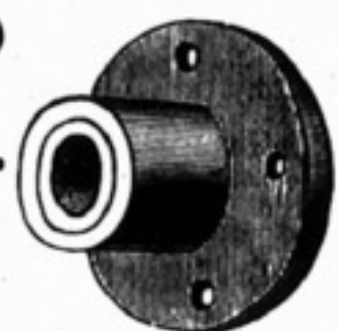
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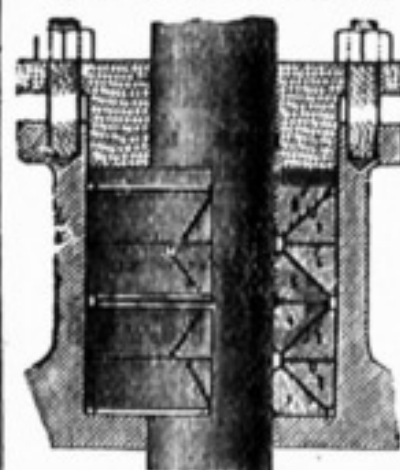
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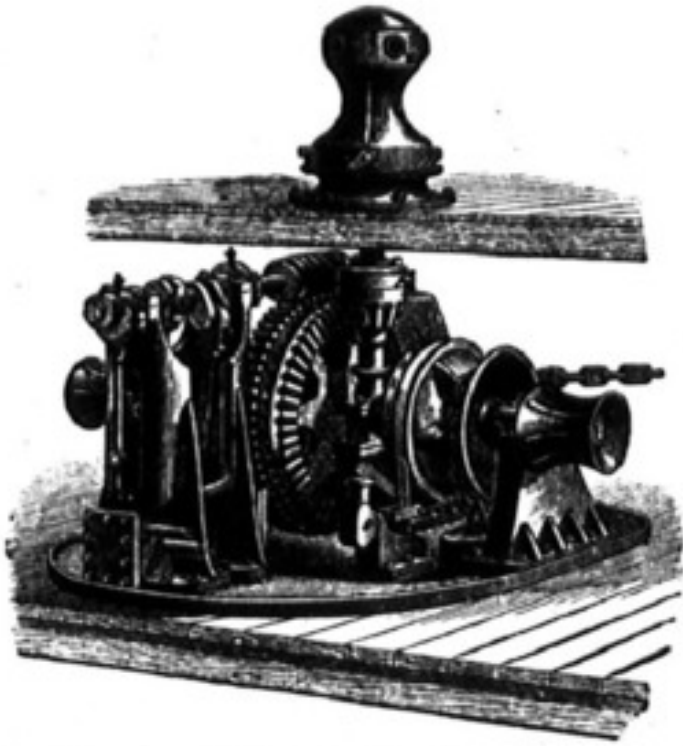
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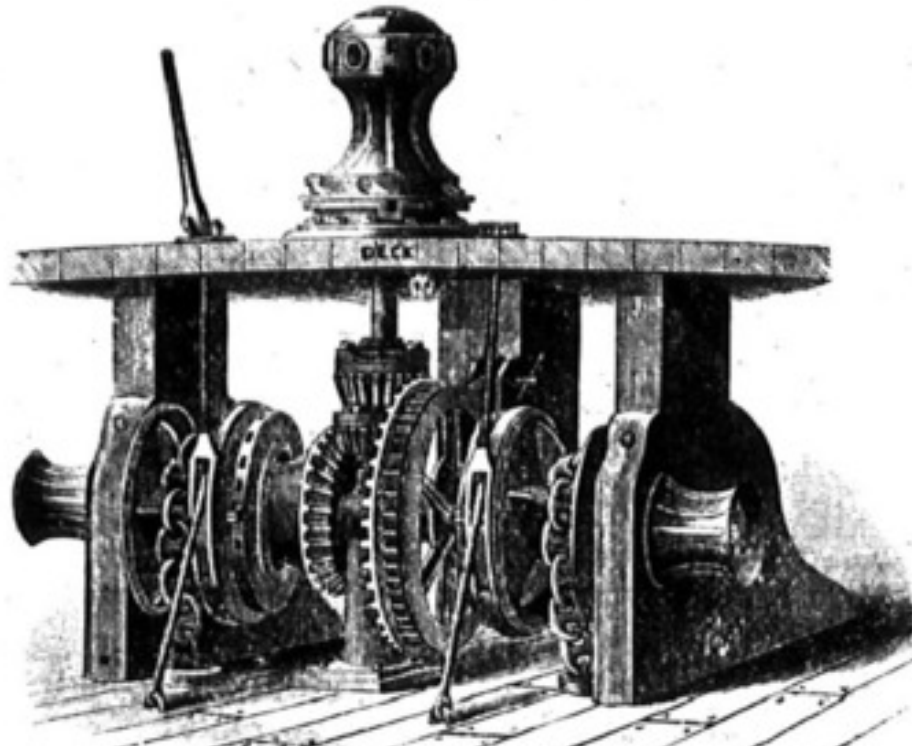
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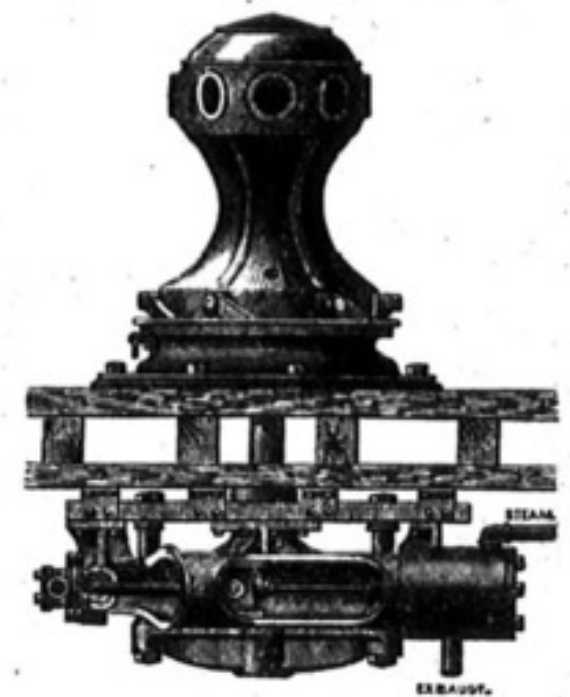
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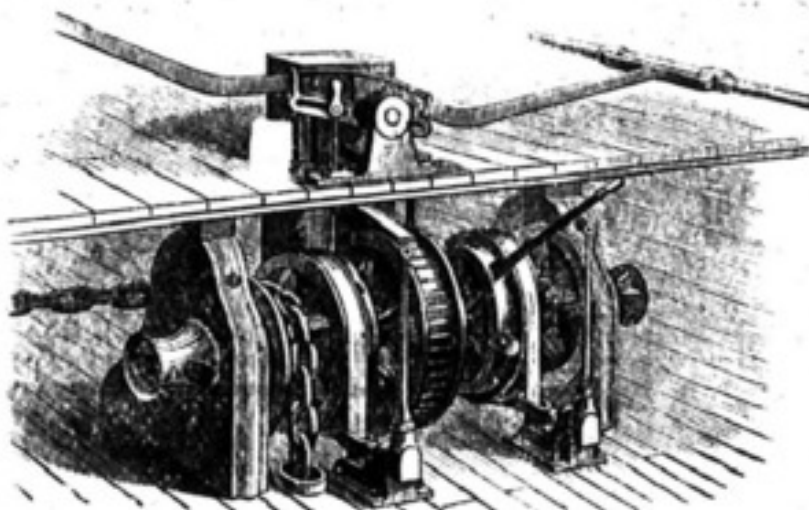
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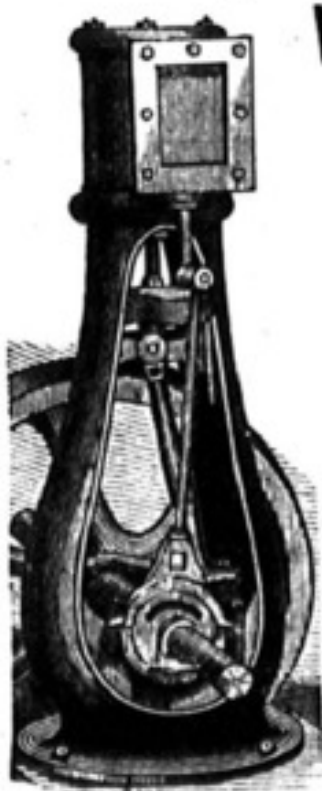
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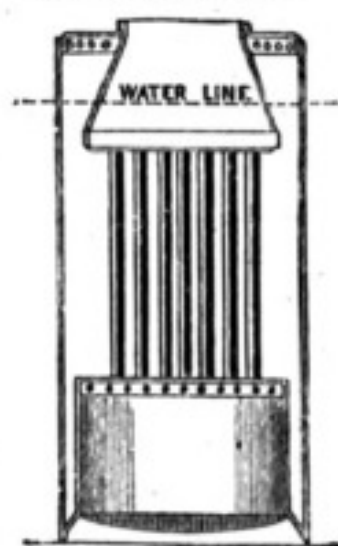


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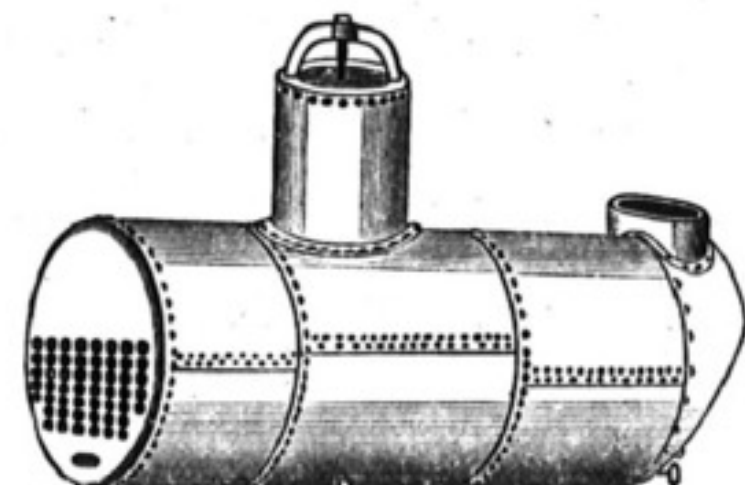
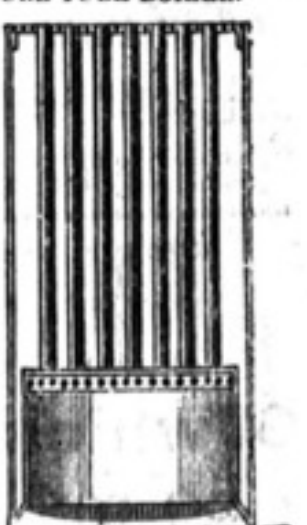
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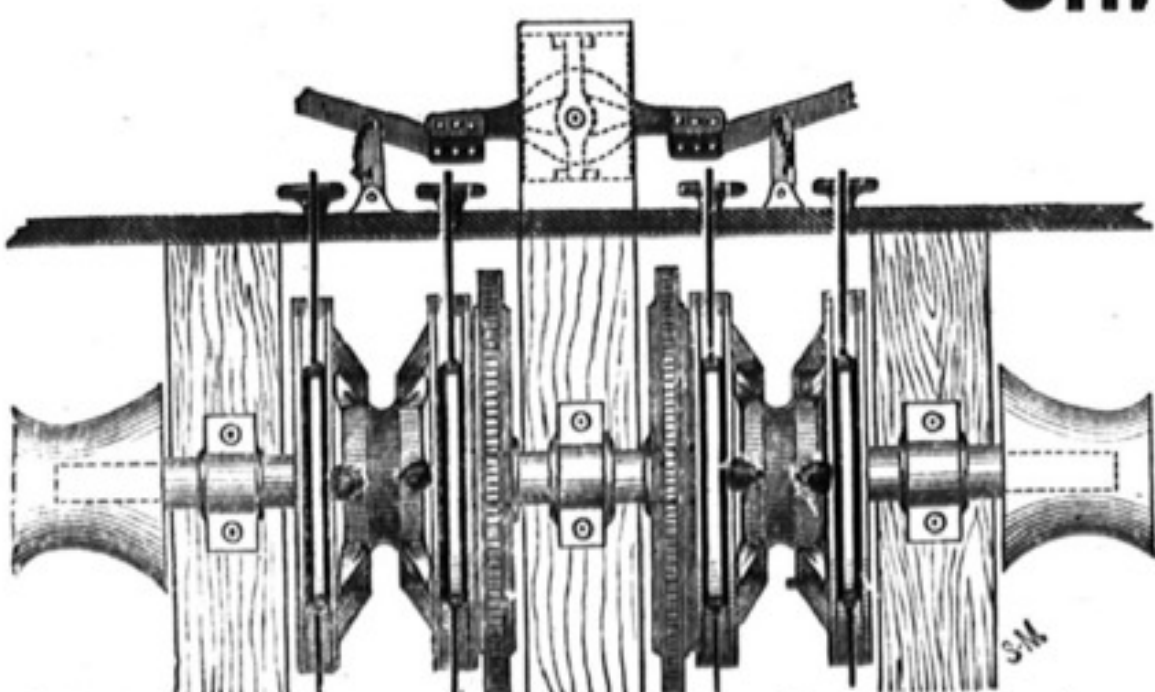


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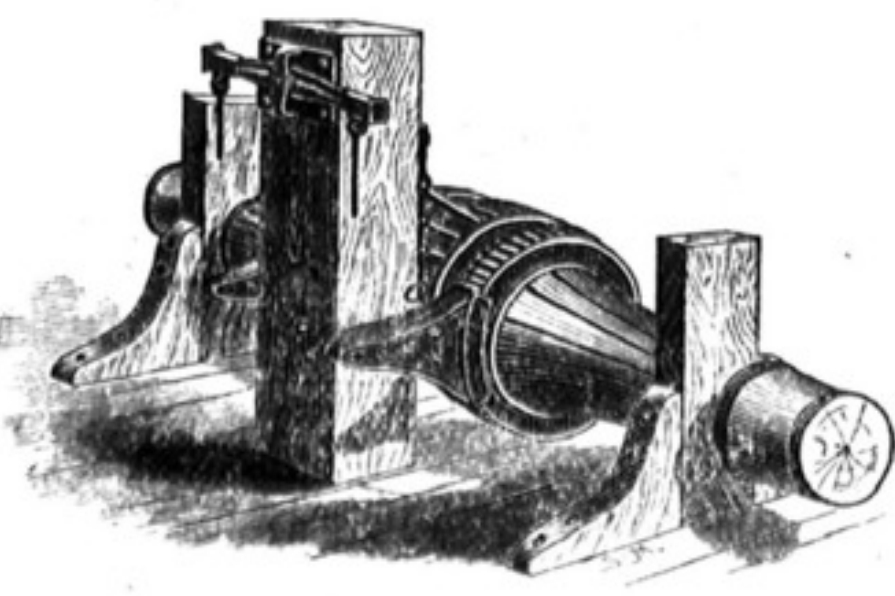


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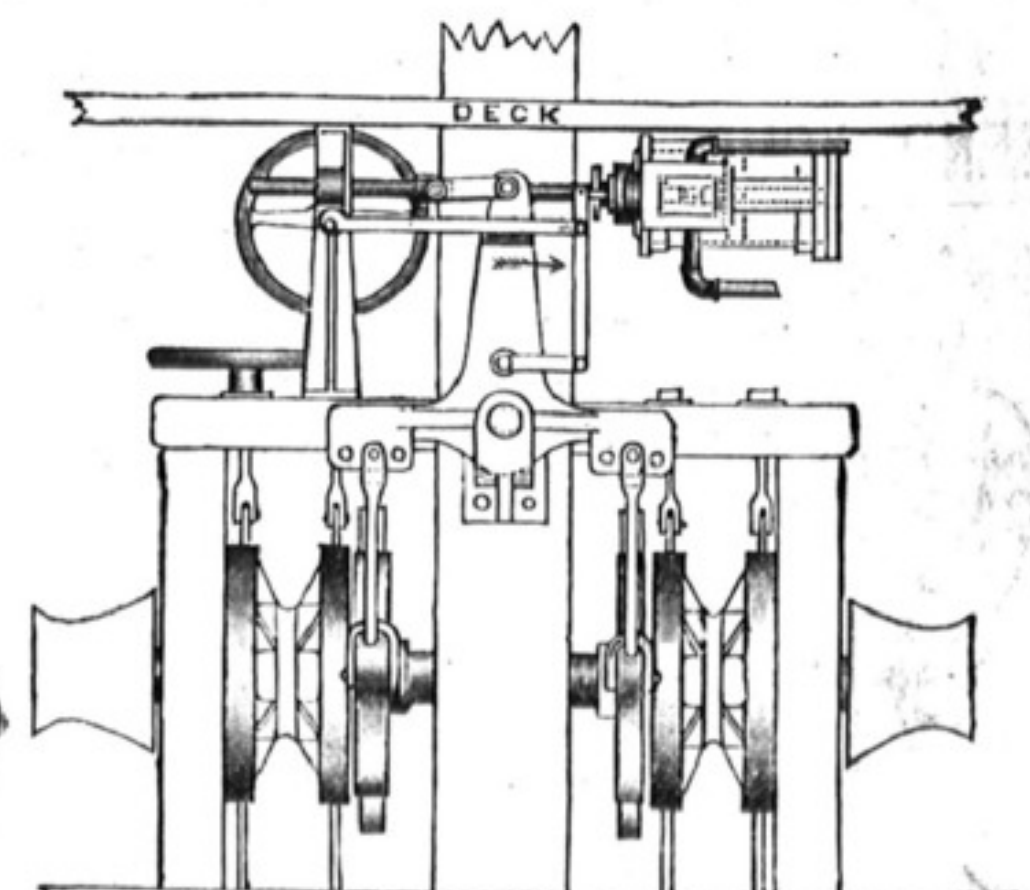
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